UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,044	10/01/2003	Rajesh Balchandran	BOC9-2003-0063 (432)	7703

40987 7590 06/15/2007
AKERMAN SENTERFITT
P. O. BOX 3188
WEST PALM BEACH, FL 33402-3188

EXAMINER	
HERNANDEZ, JOSIAH J	
ART UNIT	PAPER NUMBER
2626	
MAIL DATE	DELIVERY MODE
06/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/677,044	BALCHANDRAN ET AL.	
	Examiner	**Art Unit**	
	Josiah Hernandez	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 1944*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-30* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *01 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/25/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 5, 6, 8-10, 13-20, 22, 23, 25-27, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated over Horowitz et al. (US PGPub 2004/0260543).

As to claims 1, 18, and 30, Horowitz discloses a method for processing language input (paragraph [0008] lines 1-5) comprising the steps of: determining at least two possible meanings for a language input (paragraph [0012] lines 12-14); for each possible meaning determining a probability that said possible meaning is a correct interpretation of said language input (paragraph [0057] lines 1-4); computing at least one relative delta computation based at least in part upon said probabilities (the candidates and their probabilities are compared and the highest scoring pair, one relative to the other, is selected, paragraph [0074]); detecting at least one irregularity within said language input based upon said relative delta computation (if there is some irregularity like an ambiguous input text, paragraph [0004] lines 10-16); performing at least one programmatic action responsive to detecting said irregularity (paragraph [0009] lines 5-15).

As to claims 2 and 19, Horowitz discloses said irregularity comprising mumble (any input that fails to be detected by a speech recognition, a mumble, is fixed in the invention, paragraph [0009] lines 11-15)

As to claims 3 and 20, Horowitz discloses said irregularity comprising ambiguous input (paragraph [0004] lines 10-16).

As to claims 5 and 22, Horowitz discloses at least one irregularity detected by said method comprises two or more irregularity detected by said method further (paragraph [0005]) comprises the step of: differentiating between different ones of said irregularities (paragraph [0004] lines 10-16) such that different programmatic actions are performed responsive to detecting different irregularities (different irregularities are identified and correct action is taken, in this form, each irregularity is corrected one at a time so as to differentiate one from the other, paragraph [0009] lines 1-5 and 11-15)

As to claims 6 and 23, Horowitz discloses said programmatic action comprises the step of prompting a user for further input to resolve said irregularity (the user would have to give further input to disambiguate the original input, paragraph [0005] lines 11-15)

As to claims 8 and 25, Horowitz discloses the step of receiving a top-n list of possible meanings for said language input, wherein said determining of possible meanings further comprises selecting at least two possible meanings contained within said top-n list (once the n-best list is chosen a plurality (two or more) results are chosen, paragraph [0037] lines 1-10).

As to claims 9 and 26, Horowitz discloses said possible meanings of said top-n list are each associated with a probability that said possible meaning is a correct interpretation of said language input, said selecting step further comprises the step of selecting said two possible meanings having the highest probabilities (in order to disambiguate an input the highest scoring pair is selected, paragraph [0074] lines 1-6).

As to claims 10 and 27, Horowitz does not specifically disclose the n-best list comprising of at least 3 meaning or computing two different relative delta computations. It would have been obvious to one having ordinary skill in the art at the time the invention was made that the list disclosed by Horowitz would include more than just one or two meanings. In order for the list to resolve any ambiguities, the list would have to provide a proper amount of alternatives and as paragraphs [0093]-[0096] shows there are three results with their corresponding confidence level. If there are more than two results in the n-best list then more than one relative computation (paragraph [0074] describes calculating relative values to resolve ambiguities) can also be calculated.

As to claim 13, Horowitz discloses a system for processing language input (paragraph [0008] lines 1-5) comprising: a natural language processor configured to convert a language input into a plurality of possible meanings (abstract lines 1-5) and to assign a confidence value to each of said possible meanings (paragraph [0012] lines 12-14); and an anomaly detector configured to detect the occurrence of at least one irregularity within said language input (if there is some irregularity like an ambiguous input text, paragraph [0004] lines 10-16) using at least one relative delta computation (the candidates and their probabilities are compared and the highest scoring pair, one relative to the other, is selected, paragraph [0074]).

As to claim 14, Horowitz discloses a training engine configured to generate thresholds used by said anomaly detector to detect said irregularities (a list of n-best results are gathered by the use of thresholds, paragraph [0012] lines 12-14, and then irregularities are identified and corrected (if there is some irregularity like an ambiguous input text, paragraph [0004] lines 10-16).

As to claim 15, Horowitz discloses said anomaly detector further comprises a relative delta score calculator configured to calculate relative delta computations (the candidates and their probabilities are compared and the highest scoring pair, one relative to the other, is selected, paragraph [0074]).

As to claim 16, Horowitz discloses said anomaly detector further comprises a relative delta score interpreter configured to compare relative delta computations to threshold values to detect said irregularities (a list of n-best results are gathered by the use of thresholds, paragraph [0012] lines 12-14, and then irregularities are identified and corrected (if there is some irregularity like an ambiguous input text, paragraph [0004] lines 10-16).

As to claim 17, Horowitz discloses said anomaly detector further comprises a learning module configured to adjust threshold values based upon operational behavior (the threshold values are tuned to achieve maximum accuracy, paragraph [0374]).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 5-10, 13-20, 22-27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al. (US PGPub 2004/0260543) in view of Bokser (US 5,261,009).

As to claims 7 and 24, Horowitz does not specifically disclose subtracting or dividing the probabilities of a language model. Bokser teaches computing a numerator by subtracting a probability of a second one of said meanings from the probability of a first one of said meanings (the probabilities are converted into confidence value and use subtraction from one meaning to the other in the function in order to accomplish the conversion, column 16 liens 39-59). Bokser further teaches setting a denominator to the probability of said first meaning; and dividing said numerator by said denominator (a normalization takes place by converting the frequency values into probability (relative frequency) values by dividing each frequency value by a total number of trigram values, column 8 lines 11-16).). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the language input system of Horowitz with the subtracting and dividing of probabilities as disclosed by Bokser. Doing so would allow the normalize and convert probability values in to a confidence value which is a more efficient value to use for interpreting the searched items (the confidence value is the relative value of the probabilities).

2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al. (US PGPub 2004/0260543) in view of Bokser (US 5,261,009) as applied to claim 1 and in further view of Baker et al. (US 5,754,972).

> AS to claims 4 and 21, Horowitz and Bokser do not disclose specifically said irregularities comprising compound input. Baker teaches a speech recognition system that identifies compound input (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the language input system of Horowitz with identifying compound inputs as disclosed by Baker. Doing so would allow the recognition system to be more accurate and identify more successfully.

3. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horowitz et al. (US PGPub 2004/0260543) in view of Bokser (US 5,261,009) as applied to claim 1 and in further view of Strom et al. (US PGPub 2003/0004717).

> As to claims 11 and 28, Horowitz or Bokser do not disclose specifically plotting values on a graph in order to determine a threshold level. Strom teaches a method of properly weighing grammars for a language model in speech

recognition (abstract). Strom further teaches using graphs to compare different threshold values in order to choose the right level (paragraph [0101]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the language input system of Horowitz and Bokser with the method of graphing a threshold value as disclosed by Strom. Doing so would have allowed to determine an accurate level for the threshold in order to correct irregularities.

As to claims 12 and 29, Horowitz or Bokser do not disclose specifically using a graphical user interface and using that to adjust threshold values. Strom teaches graphical interface in order to adjust the threshold value (paragraph [0101]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the language input system of Horowitz and Bokser with the method of presenting a GUI so that the threshold can be adjusted as needed. Doing so would allow for the threshold to easily be adjusted.

Conclusion

Any inquiry concerning this communication should be directed to Josiah Hernandez whose telephone number is 571-270-1646. The examiner can normally be reached from 7:30 pm to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER [illegible]